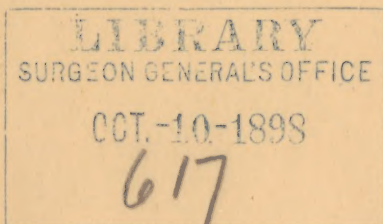


Burrall (F.A.)

On some of the uses of the
Knees in running



gained in flesh and strength during the interim. In August, 1873, he was again unable to sleep, and endeavoured to get through a night by inhaling chloroform. Only transitory relief could thus be obtained, and it was often necessary to repeat the chloroformization five or six times before morning, when he would arise with a severe headache and feel much depressed during the day. Not only was he so affected by night, but he would have days in which he was totally unable to carry on a connected conversation, for want of sufficient breath. While in this condition I gave him arsenic in quantity to produce very slight nausea, and relief resulted within three days. At one time when he had not been taking medicine for several weeks, a sudden attack of dyspnœa came upon him with such power, that with difficulty he was able to walk several squares to his residence. A hypodermic injection of Fowler's solution gave him almost instant relief, and he had abundant time to become arseniated in the ordinary way, before the effect of the injection had passed. When taking arsenic he expresses himself as being entirely well, and he improves in his physical condition. Being also subject to autumnal catarrh, he has been relieved equally speedily and perfectly by this remedy. His respiration is now so good that he habitually walks six or eight miles nearly every day without inconvenience.

CASE II.—Robert B., aged 25, Irish, labourer, has been in this country eight years, and during the entire period he has been a confirmed asthmatic. He is subject to aggravated attacks at any time, but he cannot say that they are more severe in the fall or at all influenced by vegetation. Has been frequently confined to his bed by them, and often was unable to remain in a recumbent position. They have very generally been accompanied with a spasmodic cough with scanty expectoration. At various times he has been under treatment, but he seems to have been but slightly relieved. October 11, he came under my care at Charity Hospital, and was ordered Fowler's solution combined with syrup of squills. I saw him the following Wednesday, and found him much improved. He now (Nov. 12) says that "he never felt better since he has been in this country." He sleeps well, has a good appetite, and feels much stronger.

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ART. IX.—*On some of the Uses of the Knees and Elbows (all fours; à la vache; quadrupedal?) Position.* By F. A. BURRALL, M.D., of New York.

EVERY now and then critical cases are reported in the medical journals in which a favourable issue has been determined by placing the patient upon elbows and knees. It is not probable that in all these instances the patients referred to have been placed literally in that position, often they have more likely been upon what might be called "all fours," in which event the usual term might not be strictly applicable. Yet the title of "elbows and knees," as applied to the posture in question, conveys an idea of the attitude of the patient which is sufficiently clear to be readily under-

stood. Perhaps the term "*quadrupedal*" might be substituted, as classical, brief, and descriptive. The posture, as described by Dr. Marion Sims in his valuable work on *Uterine Surgery*, seems, with trifling modifications for particular cases, best adapted to secure all the attainable advantages of this manœuvre. He is writing of the introduction of his speculum, and after adding that he "rarely resorts to this method now," thus speaks of placing his patient upon her "knees":—

"Place the patient on a table on her knees, and bend her body forwards till the head is brought down to the plane of the table, where it may rest in the two hands, its weight supported on the left parietal bone, while the elbows are thrown widely from the sides. The knees are to be separated eight or ten inches: the thighs are to be at about right angles with the table; thus the plane of the table, the axis of the thighs and that of the body would form a right-angled triangle, of which the thighs and table would make the right angle, and the body the hypotenuse. The patient must be taught to maintain unflinchingly this position; she must not pitch forwards and make the pelvic angle obtuse, nor draw the knees up under the body, making it more acute; she must not arch the spine upwards, for this brings into forcible action the abdominal muscles, which should be perfectly relaxed, with the spine rather curved downwards, as we see it in sway-backed animals. With these precautions fully impressed on her, she is to breathe easily and relax the muscles of the abdomen. In consequence of this position quietly retained for a few moments, the movable abdominal and pelvic viscera necessarily gravitate towards the epigastrium."

This position may be modified by placing the knees together, thus relaxing the adductors of the thigh, or by directing the patient to free the lungs of air as much as possible, when, in consequence of diaphragmatic contraction, the area of the abdominal cavity is increased.

Of course it is not claimed in this article that the advantages of this position are not acknowledged by medical men to a considerable degree. On the contrary, it has been prominently brought forward by some, for special indications; yet my own observation has convinced me that it is often overlooked in general practice, whereas it should always be kept in mind as a valuable resort. We are accustomed to think of our patients as lying upon back or side when confined to their beds, and then the force of gravity is acting in a direction opposite to these positions; now by changing these, the action of gravity may be reversed, and sometimes with decided benefit. Thus an open abscess or a suppurating wound may by position become either a cavity dilating with increasing purulent secretion, or contracting in consequence of a free discharge of fluid.

As gravity is the agent on which the freedom of discharge depends, so to the same attraction are mainly due the advantages of the "all fours" position. Besides the effect of gravity, however, there are other results. The warm air in the intestines, in consequence of its comparative lightness, passes backward towards the anus, and, as a consequence of the relaxation of those muscles which pass from the anterior portion of the trunk to the femur, it is fair to conclude that there is diminished tension in those parts adjacent to the abdominal rings.

It has been claimed that atmospheric pressure has a share in the uses of this posture when employed for uterine examinations.

"If the surgeon will get immediately behind his patient and lay his hands on the nates, and push them gently upwards and backwards, taking care that her position is not changed, he will see the mouth of the vagina open and, at the same moment, hear the air rush into it with a hissing sound; and then, if he will, with even his finger, raise the perineum up towards the os coccygis, he will see the vagina distended like an inflated bladder. If, however, he will use my speculum instead of the finger, the cavity of the vagina will be more easily seen.

"If he will now remove the instrument (or finger) and allow the mouth of the vagina to close, and then if he will let his tired patient fall over on her side, he will have audible and unmistakable evidence of the sudden escape of air from the vagina.

"The object of this speculum (whether used with the patient on her knees or on the side) is to elevate the perineum and to partially support the posterior wall of the vagina; the *pressure of the atmosphere* with the gravitation of the viscera does the rest."—*Uterine Surgery*, p. 14.

It is really worthy of careful consideration whether the above phenomena are due to atmospheric pressure. It certainly seems fairly demonstrated that the cavity of the vagina is enlarged while the body is supported on elbows or hands and knees, but is not an effect mistaken for a cause when it is claimed that this dilatation results from the pressure of the atmosphere? Although philosophy teaches us that there is a pressure of fifteen pounds to the square inch all over the surface of the body, it also teaches that this pressure is from within outwards as well as from without inwards, otherwise death would be inevitable from impossibility of respiration if from no other cause. If the abdominal cavity were a vacuum, then atmospheric pressure from without would act with immense force in whatever position the body might be placed, but as the abdominal cavity is not a vacuum and this pressure acts equally in all directions, it seems to me that its agency in producing dilatation of the vagina must be denied.

But how then may we account for the dilatation? I have been enabled by the kindness of Dr. John G. Curtis, Demonstrator of Anatomy at the College of Physicians and Surgeons, New York, to ascertain from the cadaver that traction on the rectum, bladder, or uterus will also produce traction on the vagina. These organs are all, as is well known, closely united by means of that fold of peritoneum, which, passing from the rectum, envelopes a large portion of the external surface of the uterus and bladder. This being premised, the following seems a simple explanation of the dilatation of the vagina when a patient is placed upon hands and knees. The uterus and bladder fall forwards, and as the anterior wall of the rectum is comparatively movable, that may also, aided by the weight of the uterus, follow the same course. As a result of traction upon the vagina, the cavity is elongated and enlarged, and the contained air rarefied.

When the vagina is partially opened, the air "rushes in with a hissing

sound" to fill the enlarged cavity, although seeming to dilate it. As the patient assumes again an ordinary position, the air which has entered is forced out by the descent of the pelvic viscera.

I have written rather minutely with regard to the dilatation of the vagina by air when a patient is on elbows and knees, for the subject seemed one of considerable interest from a scientific point of view, and I have not been satisfied with the explanation which is based on the action of atmospheric pressure. Perhaps more might be learned on this point, as well as on others connected with the changed relations produced in the body by this posture, from a study of a vertical section of the frozen cadaver placed on elbows and knees.

Although some of the effects of this posture are still in obscurity, we may regard it as pretty well determined that it is of much value in removing pressure from pelvic organs and, to a certain degree, those of the abdomen. No position favours the injection of air or water into the bowels to the same degree as this.

In 1867 I was attending a patient who suffered from a purulent rectal discharge connected with the presence of several strictures. One of these was far up the rectum. For the purpose of diminishing this discharge I concluded to wash out the intestine with a solution of carbolic acid. In using a long elastic tube I found it difficult to introduce it satisfactorily, but, placing the patient on his elbows and knees, the tube was passed far up the bowel and the solution poured into it from a small pitcher. The discharge of pus was not much modified, yet the operation was greatly facilitated by the position.

Dr. Lambl, of Charkow, has written as follows with regard to the uses of this posture in cases of intussusception.¹

"As there is much difference of opinion among practitioners concerning the advantages of surgical and medical treatment in cases of internal incarcerations (inneren incarcerationen), it seems fitting to refer to a method hitherto unnoticed, which is, I believe, especially in recent cases, worthy of trial before resorting to severer measures. I have seen good results in three cases accompanied by symptoms of internal obstruction: in one of these, that of an elderly woman, croton oil and irritating enemata had been used on the first two days; at the consultation on the third day, in which I took part, the use of metallic mercury was suggested, surgical interference was mentioned, and an operation would probably have been performed had not a trial of the method which I proposed been promptly followed by a favourable issue.

"This method consists in causing the patient to rest upon elbows and knees with elevated pelvis (*à la vache*) as long as possible, while at the same time the abdomen is gently stroked with both hands from the hips to the umbilicus. The result is surprising, and I explain what seems to me the mechanism of this manipulation in the following manner. Incarceration, whether resulting from a simple twisting of the intestine, or from the formation of intestinal knots, results, on the one hand, from strangulation by the fan-like fold of the mesentery, and, on the other, from the arrest of peristaltic action in those portions of the gut about the point of constriction. While the patient lies in the usual horizontal position, on the back, the solid and fluid contents of the intestine

¹ Virchow's Archiv. Bd. lxx. s. 119.

naturally remain below, while the gaseous is above, and the gut and mesentery are fixed immovably. In order to relax the constriction the relations of the parts must be changed, the more solid contents being diverted towards the anterior, and the gaseous to the posterior part of the bowel. This may be accomplished by the position of the abdomen. With relaxed abdominal walls, there is an increased area for the intestinal folds and the mesentery is proportionately drawn into the normal median plane. Thus may the strictured gut unloosen itself, the mesentery unfold, and normal peristaltic action ensue."

In the *Transactions of the New York State Medical Society* for 1872 is a very interesting paper by Dr. Stephen Rogers, of New York, on intussusception, with references to many authorities on the subject. Dr. Rogers narrates cases which have come under his observation, in which the above posture was used persistently, and repeated injections of warm salt and water administered, with happy results.

This position was also of service in a case of stricture of the rectum seen December 1, 1872, with Doctors Forrester, McLeod, and Stimson.

The patient was an unmarried American woman, 40 years of age. In the previous spring she had suffered from dysentery, which lasted about two months. Her bowels became irregular after this attack. Ten days before the illness, which occurred in December, she was seized with pain in the epigastrium, and took, with some relief, a powder containing bismuth and morphia. There was one movement of the bowels after the powder, and then ensued constipation, which did not yield to the active use of purgatives and injections. Much tympanites was present.

An examination of the rectum and vagina disclosed an annular stricture of the rectum which could be felt at the tip of the index finger by introducing it as far as possible. Patient was examined on elbows and knees, on her back, and while lying on her left side with the knees drawn up and the hips elevated. The upper portion of the intestine, which was dilated, seemed pressed into the lower, and the stricture gave to the touch the sensation of internal hemorrhoids, or, to use the comparison of Dr. Macleod, the toes of the fœtus ("baby's toes") as felt in the gravid uterus. The vagina and womb seemed normal, excepting that the womb was retroverted. A gum-elastic catheter, about No. 10 in size, was introduced into, but not through the stricture. Fluid feces began to pass that night, but although attempts to pass the catheter through the stricture were made daily, they were unsuccessful until Dec. 4, when a small injection of olive oil was thrown into the bowel above the constriction, which was apparently $1\frac{1}{2}$ inch in length. The pulse, which was 120 on Dec. 1, had fallen to 90 by the 5th, when pultaceous feces began to pass with considerable freedom, and in large quantities, five chambers full being voided within two days. The patient was kept upon her left side with knees drawn up and hips somewhat elevated, a position bearing some analogy in its effects to that of the elbows and knees, and which favoured the passage of flatus.

A gradual restoration to her usual health followed. I do not know the present condition of the stricture, as when I last saw patient she was averse to an examination.

The elbows and knees position was useful in this case, both for making examinations, passage of instruments, and administering injections.

I think I have found this position useful as an aid in the reduction of strangulated hernia. It would seem *a priori* as if the traction caused by

the falling forward of the intestines when in this position, the relaxation of the muscles near the abdominal rings, and the relief of congestion of the gut, which might be supposed to arise from the elevated pelvis, would favour the reduction of the bowel. I can, however, give but one case in which the manœuvre was followed by a return of the intestine, although I found the tumour soften in a recent case after the use of this method. In a case of strangulated femoral hernia, in which I tried this manœuvre, in 1870, I found it of no avail.

The case in which this method was followed by reduction occurred several months since, and was that of an oblique inguinal hernia in a blind man, æt. about 60. He had first observed the hernia three years previously, after lifting a set of drawers, and then a truss was applied. At date the intestine came down while patient was taking a warm bath, and became strangulated. He was seen at 12 M. by his physician, and an unsuccessful effort made at reduction. Iced water cloths were applied, and I saw him at 10 P.M. The tumour was tense and about as large as a hen's egg. There was some vomiting, but little abdominal tenderness. I attempted taxis with patient's knees bent and thighs flexed upon the abdomen, but without result. I then placed him upon hands and knees and repeated the attempt. Although the tumour did not return entirely while he was in this position, yet it seemed to me that it first began to yield while he was thus placed, and on putting him once more upon his back the intestine was easily reduced.

Dr. C. K. Briddon, of New York, informs me that he was recently sent for by Dr. John Howe to see with him a case of strangulated hernia. Dr. Briddon went prepared to operate, but at the consultation Dr. Howe proposed to attempt taxis with the patient on "all fours." The suggestion was adopted, and the intestine reduced with comparative ease.

It is hardly necessary to refer to the advantages of this posture in the reduction of prolapsed fundis, since it has been prominently brought forward by the eminent Professor of Obstetrics in the College of Physicians and Surgeons, New York, Dr. T. G. Thomas, and has met with much favour.

There is considerable interest connected with this adaptation of postural treatment, since it seems to be one of those instances which are not very uncommon in medicine, in which an obsolete and valuable remedy is rediscovered, the discoverer being unaware of its previous existence.¹

Dr. A. Hadden, of New York, reports a case in the *New York Medical Record* of Aug. 15, 1866, in which, the cord being prolapsed and an arm presenting, the patient was placed on elbows and knees, the funis reduced, and then a successful version accomplished "without much difficulty." The writer adds: "This position of the patient will, in my opinion, be

¹ For a historical résumé, by Dr. K. F. I. Birnbaum, of the plan of replacing the cord by putting the woman in the knee-elbow position, see *Am. Journ. Med. Sci.* for April, 1868, p. 550, and *New York Medical Journal* for January, 1868, pp. 371-4.

found to render pelvic version easier when required to be done by introducing the hand into the uterine cavity."

For the replacement of prolapsed hemorrhoids and rectal prolapsus, the advantages of this position are at once apparent, and since the warm air of the intestine tends toward the anus when the patient is on knees and elbows with elevated pelvis, this posture suggests itself as useful in cases of colic connected with excess of intestinal gas.

There are many other uses of this posture which will occur to the practitioner if the indications which it fulfils are not forgotten. This paper is intended to bring prominently forward the advantages of a resource which is frequently overlooked, but is not a compendium of all its uses. Like Ophelia's rosemary, it is "for remembrance."

Whenever we wish to reverse the usual action of gravity upon the contents of the abdomen or pelvis, or to remove from the pelvic organs the ordinary pressure of superjacent viscera, this posture should be borne in mind.

ART. X.—*Description of a New Forceps.* By ALEX. McBRIDE, M.D.,
of Berea, Ohio. (With four wood-cuts.)

To alleviate and abridge human suffering and to increase the sum of human life are the cardinal objects of the physician's labours. Dr. Paul Chamberlain, by his invention of the obstetric forceps, made a notable advance towards these objects; and whoever improves this instrument so as to extend its usefulness makes some advance in the same direction. This I have endeavoured to do by attempting to make the instrument less objectionable in appearance, more easy of application, and diminishing its liability to do harm.

All, or nearly all, the forceps which I have seen seem to me to possess one or more of the qualities of frightfulness, awkwardness, inefficiency, or destructiveness.

The first object I had in view was to divest the forceps of their uncouth or frightful aspect. To accomplish this the instrument must be shorter, lighter, and present a less "martial" appearance. The handles could not consistently be shortened and maintain the same length of shanks, and shortening of the latter was not admissible unless a joint or lock could be contrived which was not liable to pinch. At this point my labour began. To effect that object I have contrived a convenient and secure lock which cannot pinch under any circumstances. I have reduced the shanks to two

¹ A much venerated teacher, before proceeding to demonstrate the long forceps, always expressed regret that the instrument had such a "martial appearance."

inches, the handles to three and a half inches, thus making an instrument, the entire length of which, in a right line, is $11\frac{1}{4}$ inches, capable of being used at the upper strait. To this I have added adjunct handles which, when used for difficult cases, increase the entire length to $15\frac{1}{4}$ inches.

The next point to be attained was to produce a blade with all the facility for grasping and traction which pertains to the best instruments in use, such as Davis's and Hodge's, and to lop off redundancy, all that might interfere with its perfect ease and safety of application. Now, when traction is made, no part of the instrument touches the head except that portion of the blades which is forward of the point of greatest expansion. Hence it is plain that no width of blade posterior to that point can make any difference in the safety and facility of extraction or firmness of hold. But it is easy to comprehend that a considerable width of this portion of blade may interfere seriously both with the safety and ease of introduction. With these views of the case, I have given my blades ample width ($1\frac{7}{8}$ inch), from near the tips to a point $3\frac{1}{4}$ inches from the tips, in a right line, and from this point they rapidly decline in width to the shanks. This wide portion of the fenestra admits of the protrusion of the parietal protuberances, retaining all the advantages of the wide blades of Davis and Hodge, and discarding the disadvantages of their width of heel portion. The length and cephalic curve of this portion of the blades are such that the tips can never endanger the perineum by extending beyond the chin, their maximum extent being $3\frac{1}{4}$ inches from the parietal protuberance, which can never reach the chin.

To improve the pelvic curve was another point of consideration, so that when the blades are on the head at the upper strait, the shanks or handles shall be in the centre of the os externum. The reason for this is twofold: first, the better to preserve in the mind the position of the head, and the true line of motion; second, to avoid the pressure of the handles against the perineum, and in many cases to avoid the necessity of moving the patient from her dorsal position in bed. To accomplish this I have commenced the pelvic curve at the joint, so that the axial curve is uniform from the joint to the tips of the blades, thus increasing the length of the ordinary curve two inches, and rendering the curve of the blade more gentle than in many instruments; this has the effect to throw the handles more forward, and in effect to increase their length about one inch. The curve is an arc of a circle whose radius is nine inches, projected from a line perpendicular to the joint, and supposed to be very nearly the average curve of axis of pelvis. With these conditions the short instrument can be easily applied at the upper strait and give sufficient projection of handles to afford a good hold.

But to provide for those cases in which much leverage, traction, or rotation is required, I have provided supplemental handles. When these are inserted we have a veritable long forceps of about the usual length, each

Burrall F. A.

On Some of the Uses of the
Knees and Elbow Position. 8/p.

1874.

